

DUCK BROOK BRIDGE

HAER NO. ME-40

Acadia National Park Roads & Bridges

Spanning Duck Brook between Witch Hole Loop Road and New Eagle Lake (Motor) Road

Bar Harbor Vicinity

Hancock County

Maine

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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

Department of the Interior

P.O. Box 37127

Washington, D.C. 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

DUCK BROOK BRIDGE

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LOCATION: Spanning Duck Brook between New Eagle Lake Road and Witch Hole Pond Loop Carriage Road at post 5, 1 mile northwest of Bar Harbor, Acadia National Park, Mount Desert Island, Hancock County, Maine
Quad: Bar Harbor, ME
UTM: 19/560850/4915450

DATE OF CONSTRUCTION: 1929

ARCHITECT: Charles W. Stoughton, New York, New York

CONTRACTOR: Pringle Borthwick, Philadelphia, Pennsylvania

STRUCTURE TYPE: Three-span stone-faced reinforced concrete filled spandrel arch bridge.

FHWA STRUCTURE NO.: 1700-017S

ORIGINAL OWNER: John D. Rockefeller, Jr.

PRESENT OWNER: Acadia National Park, National Park Service

SIGNIFICANCE: The most graceful of the Rockefeller carriage road bridges, Duck Brook Bridge provides access to the Witch Hole Pond and Paradise Hill carriage road loops from Bar Harbor. The granite-faced reinforced concrete bridge spans the deep ravine of Duck Brook on three massive semicircular arches. Landscape gardener Beatrix Farrand devoted considerable attention to the site and oversaw a complex planting plan to "frame" and accentuate the bridge; unfortunately, these plantings were destroyed in the 1947 fire which swept over much of Mount Desert Island.

PROJECT INFORMATION: Documentation of the Duck Brook Bridge is part of the Acadia National Park Roads and Bridges Recording Project, conducted in 1994-95 by the Historic American Engineering Record. This is one in a series of project reports. HAER No. ME-13, ROCKEFELLER CARRIAGE ROADS, provides more specific information on the park carriage road system.

Richard H. Quin, HAER Historian, 1994

HISTORY

Duck Brook Bridge provides access from Bar Harbor to the Hulls Cove section (now known as the Witch Hole/Paradise Hill loops) of the Rockefeller carriage road system. Rockefeller considered the road "the grand northern terminus" of the horse road network. The road showcases a variety of interesting scenery, including the Witch Hole and Halfmoon Ponds and splendid vistas of Hulls Cove and Frenchman Bay. Construction of roads in this area started with the Eagle Lake connector, where work began in 1927.¹

To provide access from Bar Harbor and points east, a bridge had to be constructed across the deep ravine of Duck Brook, a perennial stream which is the outlet for Eagle Lake. The bridge connects the carriage road loop with the New Eagle Lake Road (formerly Champlain Road), a county secondary route.

Duck Brook bridge is considered the "most refined and sophisticated" of the sixteen carriage road bridges. Mr. Rockefeller had tried to build a relatively formal bridge at Bubble Pond [HAER No. ME-39] in 1927, but his design was rejected by the National Park Service, which drew up its own plans for the structure and contracted with Philadelphia mason Pringle Borthwick to construct it. In the case of Duck Brook Bridge, Mr. Rockefeller owned the property and did not have to secure approval from the Park Service. He engaged Charles W. Stoughton, a New York City architect who had designed bridges for the carriage roads on Rockefeller's Pocantico Hills, New York estate, to design the structure. Borthwick was hired to build it.²

The massive stone-faced reinforced concrete structure spans Duck Brook on three semicircular arches. Lookouts or viewing platforms on both sides afford views of Frenchman Bay to the north and the Duck Brook ravine to the south. A staircase on the upstream side invited visitors to walk down to a path along the brook, where they could view the handsome structure from below.

¹Vanasse Hangen Brustlin, Inc. and McGinley Hart & Associates, *Historic Bridge Reconnaissance Survey, Carriage Road System, Acadia National Park*, draft edition (Boston, MA: National Park Service, North Atlantic Regional Office, September 1993), 88.

²Ibid.; A. H. Lynam, Bar Harbor, ME to Charles O. Heydt, Personal Secretary to John D. Rockefeller, Jr., 11 April 1929. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 74 Folder 763.

The bridge was completed in 1929 at a cost of \$77,837.17. Unlike previous arrangements, Mr. Rockefeller paid directly for construction of the bridge and Borthwick was paid for supervising the work. This salary amounted to \$125 a week plus expenses; his total remuneration was \$4,349.09. Mr. Rockefeller employed his largest crew on this job; in April 1929, the weekly payroll exceeded \$1,700.³

Inspection of the bridge in 1993 revealed some damage. Parts of the arch barrel and some of the voussoirs were cracked, and mortar joints had deteriorated. Calcium carbonate was heavily deposited on the intradi, moderately on the spandrel and wing walls. Vegetation was growing on the edges of the roadway, and the stone walkway below the bridge was in poor condition.⁴

DESCRIPTION

Duck Brook Bridge is a massive stone-faced reinforced concrete bridge borne by three semicircular arches. The bridge is 207' long and carries a 20' roadway. The larger central arch has a clear span of 39'8" and rises 25' from the base of the piers; the smaller arches to either side are 21' wide and roughly 12' high. The peaked parapet wall stands 43' above the stream at the center. Two corbeled viewing platforms or "turrets" are located on each side of the bridge, and a stone staircase with stone rail, supported by a quarter arch is located at the south end of the southeast corner. Below the staircase, several steps are cut into the natural stone ledge. Over the piers between each arch are carved stone scuppers, which carry water off the bridge.⁵

The bridge is constructed on reinforced concrete piers and is faced in random ashlar pink granite. The arches are defined by irregular granite arch radiating voussoirs. Construction drawings show that 3/4" diameter iron cramps were tapped into each stone.⁶ The concrete was later poured against the stone,

³William D. Rieley and Roxanne S. Brouse, *Historic Resource Study for the Carriage Road System, Acadia National Park, Mount Desert Island, Maine* (Boston, MA: National Park Service, North Atlantic Regional Office, May 1989), 191.

⁴Vanasse Hangen Brustlin and McGinley Hart, 89.

⁵Ibid., 88.

⁶Charles W. Stoughton, "Duck Brook Bridge, Estate of Mr. John D. Rockefeller, Jr., Mount Desert, Maine," construction drawing #4, n.d. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121

and the cramps helped the two materials bond together. Because Mr. Rockefeller hoped the bridge would be viewed from the sides and below (hence the staircase), the intrados or underside of the arch is also faced in stone. The granite parapet is topped with dressed stone coping, and is pierced by horizontal openings arranged in different patterns on both sides. It rises from 2' 6" at the sides to a 3' peak at the center.

A wooden gate mounted on stone gateposts was originally located at the southeast end of the bridge. This was installed because Mr. Rockefeller wanted to keep motor vehicles from entering the carriage road network. Stoughton had originally designed iron gates; these were rejected by Rockefeller in favor of a set of wooden gates on stone piers. These were designed by architect Duncan Candler, who remodeled the Eyrie for Rockefeller, and matched a set designed for the entrance to the Jordan Pond Road (predating set constructed for the Jordan Pond Gate Lodge).⁷ The gates are no longer extant, though one of the gateposts was still intact in July 1994; as this report was being prepared, park crews were planning to reconstruct the gates.

SITE LANDSCAPE

Construction photographs show the construction site was left almost totally devoid of vegetation. In November 1930, landscape gardener Beatrix Farrand, consulting with Rockefeller on landscape work for the carriage roads, recommended planting pines on both sides of the bridge and on both sides of the stream closely with existing pines so as not to appear as new plantings. The pines were to be "kept somewhat in the background and not allowed to intrude into the foreground of the picture" where they would block the view of the stream. Care was to be taken to preserve one or two views of the triple-arched bridge from the approaches. She specified planting pines at the ends of the bridge where they would not conceal the arches, and suggested a mass of *Viburnum cassinoides* should be planted near the north end. She also suggested planting blackberries and dewberries on the roadsides. Although soil was scarce, she hoped blackberries might do well there.⁸

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⁷Rieley and Brouse, 196.

⁸Beatrix Farrand, "John D. Rockefeller, Esquire, Road Notes - November 4th, 1930," 1-2, 6. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 72 Folder 738.

The following spring, she recommended placing a few "high bush blackberries" (probably cranberries) near the cedars at the southwest end of the bridge. She made another inspection of the site in August with Mr. Rockefeller, and suggested plantings to screen the end of the bridge at the steps. Both Mr. Rockefeller and Farrand thought it would be well to veil the abutments. Farrand again mentioned the importance of preserving views of the arches from the approaches.⁹

In August, she suggested thickening the plantings around the bridge, keeping the vistas open. If the plantings later became too thick, thinning would leave "glimpses of the bridges rather than too open views." She particularly desired planting at the base of the steps, as both she and Mr. Rockefeller favored veiling the abutments and the stonework. At the ends, she suggested leaving open the best views of the bridge and planting heavily on other places with pines.¹⁰

Preparations were made for these plantings, as Mrs. Farrand revisited the site in October with Charles Miller and they noted that pockets had been prepared for plantings to screen the abutments. In November, she noted the plantings were "admirable" and had vastly improved the framing of the view of the bridge, particularly from the southwest. A group of pines, planted near the base of the steps, helped conceal the mass of masonry. Some deciduous material was employed as well, and it was expected this would "make a very good frame and effect" in a season or two.¹¹

Mrs. Farrand's carefully planned landscape was destroyed by the Great Fire of 1947. Today, a second-growth forest has established itself, blocking the vistas from the bridge and its lookouts. The cleared vistas along the road, which offered excellent views of the bridge, are also largely grown over, and only glimpses of the bridge can be had from the carriage road and

⁹Idem, "Rockefeller Roads - April 17, May 16, 18, 19, '31." Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 72 Folder 738.

¹⁰Idem, "John D. Rockefeller, Jr., Esquire - Road Notes, August 23, 1931," 1. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 72 File 738.

¹¹Idem, "John D. Rockefeller, Jr., Esquire - Road Notes, November 10, 1931." Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 72 Folder 738.

the New Eagle Lake Road. Good views can still be obtained from along the brook upstream from the bridge.

III. BIBLIOGRAPHY

PRIMARY SOURCES

Correspondence

Lynam, A. H., Bar Harbor, ME to Charles O. Heydt, Personal Secretary to John D. Rockefeller, Jr., 11 April 1929. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 74 Folder 763.

Manuscripts

Farrand, Beatrix. "John D. Rockefeller, Esquire, Road Notes - November 4th, 1930." Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 72 Folder 738.

--"John D. Rockefeller, Jr., Esquire - Road Notes, August 23, 1931," 1. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 72 File 738.

--"John D. Rockefeller, Jr., Esquire - Road Notes, November 10, 1931." Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 72 Folder 738.

--"Rockefeller Roads - April 17, May 16, 18, 19, '31." Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 72 Folder 783.

Construction drawings

Charles W. Stoughton. "Duck Brook Bridge, Estate of Mr. John D. Rockefeller, Jr., Mount Desert, Maine." Construction drawing #1, 15 September 1928. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121 Folder 1222 Map 183.

-- "Duck Brook Bridge, Estate of Mr. John D. Rockefeller, Jr., Mount Desert, Maine." Construction drawing #2, 15 September 1928. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121 Folder 122 Map 180.

--"Duck Brook Bridge, Estate of Mr. John D. Rockefeller, Jr., Mount Desert, Maine." Construction drawing #4, n.d. Rockefeller Archives Center, Office of the Messrs.

Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121
Folder 1222.

Federal Highway Administration Reports

U.S. Department of Transportation, Federal Highway
Administration. "Bridge Safety Inspection Report, Carriage
Road Over Duck Brook, Acadia National Park, Str. No. 1700-
017S, Inspected Jun 25 1990." Sterling, VA: Federal Highway
Administration, Eastern District Federal Division, 1990.

SECONDARY SOURCES

National Park Service Reports

Rieley, William D. and Roxanne S. Brouse, *Historic Resource Study
for the Carriage Road System, Acadia National Park, Mount
Desert Island, Maine*. Boston, MA: National Park Service,
North Atlantic Regional Office, May 1989.

Vanasse Hangen Brustlin, Inc. and McGinley Hart & Associates,
*Historic Bridge Reconnaissance Survey, Carriage Road System,
Acadia National Park*. Draft edition, Boston, MA: National
Park Service, North Atlantic Regional Office, September
1993.